NEVADA DIVISION OF ENVIRONMENTAL PROTECTION
FACT SHEET
(Pursuant to NAC 445A.236)

Permittee: Nevada Power Co
P O Box 98910
Las Vegas NV 89151

Permit No.: NEV91022

Facility: Reid Gardner Station
I-15 North Exit 88 (Hidden Valley Interchange)
Moapa, Clark County
Latitude: 36° 39' 30" N
Longitude: 114° 38' 20" W
T 15S, R 66E, SW¼ of SW¼ Section 5 and SE¼ Sec 6

General: Reid Gardner Station is a 4 unit 650 MW coal fired power plant on 480 ac in Moapa Valley, 4 mi west of Glendale and 60 mi northeast of Las Vegas. The Muddy River crosses the site, as does Union Pacific Railroad's Las Vegas - Salt Lake City line. The plant is surrounded by BLM land to the north and south, Paiute agricultural land and residences on the west, and an inactive dairy farm on the east. The first unit was placed in service in 1965 and the fourth unit came online in 1983. Coal is brought in by rail. The water supply is taken from the Muddy River, and from a well field near it's headwaters, with 8300 AFY used for steam generation, cooling, emission control scrubbers, bottom ash transport, and dust control.

Electric power is generated by burning coal to boil water and using the steam to power turbines. After that the steam is condensed, passed through a cooling tower, and run back through the boilers.

As coal is burned, flue gas, fly ash and bottom ash exit the boiler. Fly ash accompanies the flue gas and a portion is removed mechanically prior to the wet scrubbers, where a mildly caustic soda ash solution is used to remove sulfur dioxide and additional particulates. Bottom ash is too heavy to be carried by the flue gas and exits the boiler via a bottom hopper for hydraulic transport to dewatering bins. Cooling tower blow down supplies the scrubbers and bottom ash transport system. 60,000 gpd is removed from the bottom ash system to use for dust control on site. An additional 15,000 gpd from a treatment system for an onsite diesel groundwater plume is used for dust control use on coal piles. The scrubbers and boiler bleed off discharge to settling ponds, with the overflow directed to evaporation ponds. 7 evaporation ponds with a total area of approximately 100 ac are currently in use. Total flow to the ponds has recently been reported as 286,000 gpd.

Beginning in 1997 the Division has required the originally unlined or clay lined ponds to be either reconstructed with double liners and leak detection and collection, or removed from service. Since then, 4 ponds have had double HDPE liners installed and 2 have been removed from service. The 3 remaining evaporation ponds, and 2 settling ponds, are scheduled to be completed between 2007 through 2010.

When an ash settling pond is full, it is temporarily removed from service and allowed to dry so that the retained materials can be removed for disposal. This ash, the bottom ash collected from the dewatering bins, and the dry fly ash collected from the flue gas, have been disposed in various landfills located in an upland area of the site that has been named the Mesa. The landfill currently in use has an HDPE liner; previous landfills were unlined excavations.

Receiving Water Characteristics: Groundwater underlying this site has become contaminated with TDS, sulfate, and other constituents; due mainly to leakage from ponds and landfills. Site characterization has been undertaken pursuant to requirements of the Division's Bureau of Corrective Action, as will implementation of the ultimate remedy once that has been selected. A diesel plume under the plant site is also being addressed by the Bureau of Corrective Action.

Depth to groundwater ranges from less than 5 ft near the river to over 150 ft on the Mesa, due to it's elevated topography. Numerous monitoring wells have been installed, with approximately 50 wells currently being sampled on a quarterly basis. Additional data has been collected from hydropunch sites. Multiple plumes of have been identified. Approximate maximum concentrations are as follows.

Constituent	Approximate Maximum Concentration, mg/l	Action Level mg/l
Aluminum	3.0	0.32
Arsenic	4.0	0.16
Barium	0.058	2
Boron	1,000	1.4
Chloride	8,700	520
Chromium	0.13	0.1
Iron	9.8	0.85
Lead	0.021	0.015
Magnesium	4,100	165
Manganese	7.0	0.27
Molybdenum	3.9	0.03
Selenium	0.093	0.05

Constituent	Approximate Maximum Concentration, mg/l	Action Level mg/l
Sodium	41,000	520
Titanium	0.038	0.01
Vanadium	0.085	0.004
TDS	140,000	2570
Nitrate	16	10
Phosphate	6.2	0.2
Sulfate	50,000	1070

Source: Bureau of Corrective Action, Nevada Division of Environmental Protection

All off site wells are located more than one mile downstream from the plant, with the closest domestic wells over two miles away.

Muddy River originates from thermal spring and groundwater discharges in the vicinity of Muddy Springs, about 8 mi northwest of Reid Gardner, and flows 26 miles before reaching Lake Mead. The source area is the terminal point of discharge for a regional groundwater system that extends more than 200 miles north to Ely, and includes White River and Meadow Valley Wash. The spring discharge has decreased steadily since the 1950s, most likely due to groundwater withdrawals. The current annual mean river discharge is about 40 cfs. The water budget for the basin is currently under study by the Nevada Division of Water Resources.

The river has supported irrigated agriculture in Moapa Valley for a long time. Native Americans raised corn, beans, and gourds as early as early as 500 AD, and European civilization and farming practices arrived with Mormon settlement beginning in 1865. The flood plain has been disconnected from the river for at least a century due to deep entrenchment and straightening. A diversion dam for the adjacent inactive dairy farm is located about midway on the reach that transverses the plant property. That dam has raised the water table behind it with the result that the river is a losing stream above the dam, and a gaining stream below. The canal originating at the diversion dam has been replaced with a pipe to prevent unintentional wind borne inputs from the evaporation ponds and other plant areas.

Four native and 13 non-native fish species have been observed in the Muddy River, with the assemblage reflecting the thermal gradient resulting from the river flowing away from it's geothermal source. Water quality standards for the reach through the power plant property are given at Nevada Administrative Code (NAC) 445A.210, Muddy River at Glendale Bridge, and include total phosphates (as P) 0.1 mg/l, total nitrogen (as N) 1.4 mg/l, and dissolved oxygen 5.0 mg/l. The TDS standard is taken from the Colorado River and is 723 mg/l. Recent water quality

data collected near Glendale (below the power plant) by the Division's Bureau of Water Quality Planning is as follows: dissolved oxygen 8.58 mg/l, pH 8.3, sulfate 280 mg/l, TDS 752 mg/l, TSS 43 mg/l, and total nitrogen < 0.2 mg/l. According to a report prepared by Nevada Power Company, the TDS concentration in the river increases by 30 to 60 mg/l as it passes through the site.

Rationale for Permit Requirements: Since the original ponds have leaked over the years, the Division has required their abandonment or reconstruction with dual HDPE liners configured for leak detection and collection. Wells and discharges to ponds and dust control are sampled quarterly, with some of the parameters analyzed annually. Muddy River is sampled quarterly at 4 locations: from above to below the plant. The suite of wells and parameters is mostly driven by the site characterization requirements of the Division's Bureau of Corrective Action. Other parameters in addition to those listed in the maximum concentration table above include nitrogen species, phosphate, sulfate, TPH, organics, and hardness.

The permit contains four numerical discharge limits, all for the application of dust control water: 60,000 gpd and 1 mg/l TPH for the haul road, and 15,000 gpd and 10 mg/l TPH for the coal pile. The water sources are described above. The flow limits are at the request of the company and are consistent with operations in a hot, dry, dusty environment. The TPH limits are technology based, with a lower standard applied to the coal pile discharge in recognition of the hydraulic containment provided.

Schedule of Compliance: A sampling plan and operations and maintenance manual are due on the six month anniversary of the effective date of the permit. The remaining ponds that have yet to be abandoned or relined shall be addressed according to the following schedule.

Pond	Reline or close by
4B1	04/30/07
4B2	04/30/08
4B3	04/30/08
F	04/30/10
G	04/30/10

Procedures for Public Comment: Notice of the Division’s intent to renew discharge permit NEV91022, authorizing discharge of process wastewater to settling ponds, evaporation ponds, and to the ground surface via dust control at Nevada Power Company's Reid Gardner Station, is being sent to the **Las Vegas**

Review Journal for publication. The notice is being mailed to interested persons on our mailing list. Anyone wishing to comment on the proposed permit must submit written comments to the Division within (30) days of the publication date. The comment period can be extended at the discretion of the Administrator. The deadline for receipt of all written comments is Monday October 17, 2005 by 5:00 pm. Comments postmarked prior to that deadline will also be accepted.

A public hearing on the proposed determination can be requested by the applicant, any affected state or interstate agency, the Regional Administrator, or any interested agency, person, or group of persons. The request must be filed within the comment period and indicate the interest of the person filing the request and the reasons why a hearing is warranted. Public hearings granted by the Division are conducted in accordance with NAC 445A.238.

The final determination of the Division may be appealed to the State Environmental Commission pursuant to NRS 445A.605.

Proposed Determination: The Division has made the tentative determination to renew the proposed discharge permit for a five year term.

Prepared by: Robert J. Saunders
Staff Engineer
Bureau of Water Pollution Control
September 8, 2005